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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,649	12/30/2004	Jan Hoogerbrugge	NL02 0575 US	7853

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EXAMINER	
LAI, VINCENT	
ART UNIT	**PAPER NUMBER**
2181	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,649	HOOGERBRUGGE, JAN	
	Examiner	Art Unit	
	Vincent Lai	2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 22 December 2006 have been fully considered but they are not persuasive.

Applicant has merely submitted a summary of the prior art used without real arguments pertaining to the merits of the rejection.. Merely stating something does not is not taught or suggested, when the previous office action does address that limitation, is an unconvincing argument.

Applicant has also not addressed the objections and non-art related rejections of the previous office action. These are repeated below:

Specification

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:
(1) if a machine or apparatus, its organization and operation;
(2) if an article, its method of making;
(3) if a chemical compound, its identity and use;
(4) if a mixture, its ingredients;
(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Multi-processor computer system utilizing a low-power mode when coprocessor operation is not necessary".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 6, 7, and 8, the recitation of "a connection bus (4) connecting said processors (1) and said cache memory units (2)" is used. It is unclear as to whether the connection is meant to connect the processors to the cache units or the cache units to cache units, etc.

All other claims are rejected for its dependencies.

5. Claims 1, 6, 7, and 8 recite the limitation "said connection line (4)". There is insufficient antecedent basis for this limitation in the claim.

6. Claim 10 is rejected on the grounds that it is unclear whether the program is executed on a computer. The recitation that "if said methods are executed by said computer" is vague and indefinite.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claim 10 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 10 appears to be drawn to a computer program per se without the inclusion of the program being stored on a medium.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-4, and 6-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Engel et al (U.S. Patent # 4,747,041), herein referred to as Engel.

Examiner's Note: Two sets were found in application, with one having amendments. The set with amendments are assumed to be the claim set meant to be examined. It is also recognized that Applicant has remarked that claim 9 is missing.

As per **claim 1**, Engel discloses a multi-processor computer system comprising

at least two processors (1) for parallel execution of processes (See abstract: An alternate embodiment details the peripheral device be an unit processor in a multiprocessor system),

at least two cache memory units (2), each being associated with and connected to a separate processor (1) (All modern processors inherently have non-shared cache),

a connection bus (4) connecting said processors (1) and said cache memory units (2) (See figure 6: A system power controller microcontroller bus 610 is available for connecting the processors), and

a process list unit (3) connected to said connection line (4) for storing a process list of processes to be available for execution by said processors (1) (See figure 6: Instructions in memory are able to be passed through bus 610), wherein

said processors (1) are adapted for loading a global wake-up variable signalling process additions of processes to said process list into their associated cache memory unit (2) (See column 7, lines 43-45: A subsystem power controller is used);

for switching into a low-power mode if said process list contains no process for execution by said processors (1) (See column 14, lines 66-68: A Power Down signal is given and turns off specified parts of a system) and

for switching into a normal-power mode if said wake-up variable signals an addition of a process to said process list (See column 14, lines 39-42: A Power Up signal is given and turns on specified parts of the system).

As per **claim 2**, Engel discloses wherein said processors (1) are adapted to switch into the normal-power mode if the wake-up variable held in the associated cache memory units (2) is changed due to an addition of a process to said process list (See figure 17, column 13, line 67- column 14, line 18 and column 14, lines 39-42: An interface select number is given in an instruction to indicate what is to be turned on).

As per **claim 3**, Engel discloses wherein said processors (1) are adapted to execute a store command on the wake-up variable when adding a process to said process list (See figures 17 & 18 and column 13, line 67- column 14, line 18: The interface select must be inherently stored in at least RAM so that mode will always be known).

As per **claim 4**, Engel discloses wherein said processors (1) are adapted to send a request to other processors to drop the wake-up variable from their associated cache memory unit when adding a process to said process list (See column 14, lines 43-54).

As per **claim 6**, Engel discloses the limitations for reasoning similar to that of claim 1. A processor in the system can be found in figure 6.

As per **claim 7**, Engel discloses the limitations for reasoning similar to that of claims 1 & 2.

As per **claim 8**, Engel discloses the limitations for reasoning similar to that of claims 1-3.

As per **claim 10**, Engel discloses the limitations for reasoning similar to that of claims 7. Disclosure of the computer program stored in a computer readable medium can be found in column 9, lines 36-39.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Engel in view of Culler et al (Parallel Computer Architecture: A Hardware/Software Approach), herein known as Culler.

As per **claim 5**, Engel discloses wherein said computer system as claimed in claim 1.

Engel does not teach the use of a cache coherence protocol.

Culler does teach a computer system which is adapted for implementing an invalidation based cache coherence protocol (See section 5.1 on pages 273-283).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Engel to include the use of a cache coherence protocol. Cache coherence protocols are well known in the art and have been used in systems where memory is shared, which is the case in Engel (See figure 6: The two processors share a common memory). Some form of a cache coherence protocol must be used to maintain data integrity and ensure correct results will come from computations done by the processors in the system.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent Lai whose telephone number is (571) 272-6749. The examiner can normally be reached on M-F 8:00-5:30 (First BiWeek Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Vincent Lai
Examiner
Art Unit 2181

vl

DONALD SPARKS
SUPERVISORY PATENT EXAMINER